

International application No.

PCT/SE 2004/000551

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC7: E21B 10/28, E21B 7/28, E21D 9/10

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC7: E21B, E21D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0979926 A2 (OISHI INTERNATIONAL SYSCOM CO., LTD.), 16 February 2000 (16.02.2000) --	1-5
A	US 4363367 A (R.L. DIXON ET AL), 14 December 1982 (14.12.1982) --	1-5
A	US 2201219 A (I.C. BELL), 21 May 1940 (21.05.1940) --	1-5
A	US 4316515 A (R.C.O. PESSIER), 23 February 1982 (23.02.1982) --	1-5

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

5 July 2004

Date of mailing of the international search report

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**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.

PCT/SE 2004/000551

EP	0979926	A2	16/02/2000	CA	2280113 A	13/02/2000
				JP	3489092 B	19/01/2004
				JP	2000064788 A	29/02/2000
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US	4363367	A	14/12/1982	NONE		
<hr/>						
US	2201219	A	21/05/1940	NONE		
<hr/>						
US	4316515	A	23/02/1982	AU	532507 B	06/10/1983
				AU	5783480 A	04/12/1980
				CA	1118756 A	23/02/1982
				CA	1126254 A	22/06/1982
				CH	648633 A	29/03/1985
				CH	649345 A	15/05/1985
				DE	3014188 A,C	11/12/1980
				GB	2050470 A,B	07/01/1981
				GB	2076452 A,B	02/12/1981
				JP	1028199 B	01/06/1989
				JP	1546268 C	28/02/1990
				JP	55159096 A	10/12/1980
				NO	154586 B,C	28/07/1986
				NO	165650 B,C	03/12/1990
				NO	801095 A	01/12/1980
				NO	850587 A	01/12/1980
				SE	442318 B,C	16/12/1985
				SE	460916 B,C	04/12/1989
				SE	8003193 A	30/11/1980
				SE	8504006 A	28/08/1985
				ZA	8002376 A	29/04/1981
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WO	9918325	A1	15/04/1999	AU	9787798 A	27/04/1999
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**INTERNATIONAL SEARCH REPORT**

International application No.

**PCT/SE 2004/000551****C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p data-bbox="321 338 1117 405">WO 9918325 A1 (ROCK CUTTING &amp; DRILLING TECHNICS), 15 April 1999 (15.04.1999)</p> <p data-bbox="667 436 792 485">-- -----</p>	1-5

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Information on patent family members

30/04/2004

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EP	09979926	A2	16/02/2000	NONE		
US	4363367	A	14/12/1982	NONE		
US	2201219	A	21/05/1940	NONE		
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